

CLAIMS

1. A process for producing a hydroxylamine by reacting a salt of hydroxylamine with an alkali compound, comprising a reaction step of reacting a salt of hydroxylamine with an alkali compound while keeping the reaction solution at a pH of 7 or more.

2. A process for producing a hydroxylamine by reacting a salt of hydroxylamine with an alkali compound, comprising a reaction step of performing the reaction by adding a salt of hydroxylamine to a reaction solution containing an alkali compound.

3. The process for producing a hydroxylamine as claimed in claim 2, wherein said reaction step is performed while keeping the reaction solution at a pH of 7 or more.

4. The process for producing a hydroxylamine as claimed in any one of claims 1 to 3, wherein said alkali compound is at least one compound selected from the group consisting of an alkali metal compound, an alkaline earth metal compound, an ammonia and an amine.

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5. The process for producing a hydroxylamine as claimed in any one of claims 1 to 4, wherein said salt of

hydroxylamine is at least one salt selected from the group consisting of hydroxylamine sulfate, hydroxylamine hydrochloride, hydroxylamine nitrate and hydroxylamine phosphate.

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6. The process for producing a hydroxylamine as claimed in any one of claims 1 to 5, wherein the reaction temperature at said reaction step is from 0 to 80°C.

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7. The process for producing a hydroxylamine as claimed in any one of claims 1 to 6, wherein said reaction step is performed in the presence of a solvent containing water and/or an alcohol.

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8. The process for producing a hydroxylamine as claimed in any one of claims 1 to 7, wherein said reaction step is performed in the presence of a stabilizer.

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9. The process for producing a hydroxylamine as claimed in any one of claims 1 to 8, which comprises a separation step of separating insoluble substances from the hydroxylamine.

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10. The process for producing a hydroxylamine as claimed in claim 9, wherein the temperature at said separation step is from 0 to 80°C.

11. The process for producing a hydroxylamine as claimed in claim 9 or 10, wherein at least a part of the reaction solution after separating insoluble substances
5 in said separation step is used as a solvent for dissolving or suspending a salt of hydroxylamine and/or an alkali compound which are reaction raw materials.

12. The process for producing a hydroxylamine as
10 claimed in any one of claims 1 to 11, which comprises a purification step of purifying the hydroxylamine.

13. The process for producing a hydroxylamine as claimed in claim 12, wherein said purification step is a
15 step of purifying the hydroxylamine by at least one method selected from the group consisting of distillation, ion exchange, electrodialysis, membrane separation, adsorption and crystallization.

20 14. The process for producing a hydroxylamine as claimed in claim 12 or 13, wherein at least a part of the hydroxylamine solution obtained in said purification step is used as a solvent for dissolving or suspending a salt of hydroxylamine and/or an alkali compound which are
25 reaction raw materials.

15. The process for producing a hydroxylamine as

claimed in any one of claims 1 to 14, which comprises a concentration step of concentrating the hydroxylamine.

16. The process for producing a hydroxylamine as
5 claimed in claim 15, wherein said concentration step is a step of concentrating the hydroxylamine by distillation at the column bottom.

17. The process for producing a hydroxylamine as
10 claimed in claim 15 or 16, wherein the temperature at said concentration step is from 0 to 70°C.

18. The process for producing a hydroxylamine as
15 claimed in claims 15 to 17, wherein at least a part of the hydroxylamine solution obtained in said concentration step is used as a solvent for dissolving or suspending a salt of hydroxylamine and/or an alkali compound which are reaction raw materials.

20 19. The process for producing a hydroxylamine as claimed in claims 15 to 18, which further comprises a purification step of purifying the hydroxylamine by ion exchange after said concentration step.

25 20. A process for producing a hydroxylamine, comprising a reaction step of reacting a salt of hydroxylamine with an alkali compound to obtain a

hydroxylamine, a purification step of purifying the hydroxylamine by ion exchange, and a concentration step of concentrating the hydroxylamine by distillation at the column bottom.

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21. The process for producing a hydroxylamine as claimed in claim 20, wherein said steps for producing a hydroxylamine are performed in the order of a reaction step, a purification step and a concentration step.

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22. The process for producing a hydroxylamine as claimed in claim 20 or 21, wherein each of said steps is performed in the presence of a stabilizer.

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23. The process for producing a hydroxylamine as claimed in claim 20, which comprises a separation step of separating insoluble substances from the hydroxylamine.

24. The process for producing a hydroxylamine as claimed in claim 23, wherein the temperature at said separation step is from 0 to 80°C.

25. The process for producing a hydroxylamine as claimed in claim 23 or 24, wherein said steps for producing a hydroxylamine are performed in the order of a reaction step, a separation step, a purification step and a concentration step.

26. The process for producing a hydroxylamine as claimed in any one of claims 23 to 25, wherein each of said steps is performed in the presence of a stabilizer.

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27. The process for producing a hydroxylamine as claimed in any one of claims 23 to 26, wherein at least a part of the reaction solution after separating insoluble substances in said separation step is used as a solvent for dissolving or suspending a salt of hydroxylamine and/or an alkali compound which are reaction raw materials.

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28. The process for producing a hydroxylamine as claimed in any one of claims 20 to 27, wherein said reaction step is performed while keeping the reaction solution at a pH of 7 or more.

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29. The process for producing a hydroxylamine as claimed in claim 28, wherein said reaction step is a step of adding a salt of hydroxylamine to a reaction solution containing an alkali compound.

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30. The process for producing a hydroxylamine as claimed in any one of claims 20 to 29, wherein the reaction temperature at said reaction step is from 0 to 80°C.

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31. The process for producing a hydroxylamine as claimed in any one of claims 20 to 30, wherein said reaction step is performed in the presence of a solvent
5 containing water and/or an alcohol.

32. The process for producing a hydroxylamine as claimed in any one of claims 20 to 31, wherein the temperature at said purification step is from 0 to 70°C.
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33. The process for producing a hydroxylamine as claimed in any one of claims 20 to 32, wherein at least a part of the hydroxylamine solution obtained in said purification step is used as a solvent for dissolving or
15 suspending a salt of hydroxylamine and/or an alkali compound which are reaction raw materials.

34. The process for producing a hydroxylamine as claimed in any one of claims 20 to 33, wherein the
20 temperature at said concentration step is from 0 to 70°C.

35. The process for producing a hydroxylamine as claimed in any one of claims 20 to 34, wherein at least a part of the hydroxylamine solution obtained in said
25 concentration step is used as a solvent for dissolving or suspending a salt of hydroxylamine and/or an alkali compound which are reaction raw materials.

36. The process for producing a hydroxylamine as claimed in any one of claims 20 to 35, which further comprises a purification step of purifying the
5 hydroxylamine by ion exchange after said concentration step.

37. The process for producing a hydroxylamine as claimed in claim 36, wherein the temperature at said
10 purification step after the concentration step is from 0 to 70°C.

38. The process for producing a hydroxylamine as claimed in any one of claims 20 to 37, wherein said salt
15 of hydroxylamine is at least one compound selected from the group consisting of hydroxylamine sulfate, hydroxylamine hydrochloride, hydroxylamine nitrate and hydroxylamine phosphate.

20 39. The process for producing a hydroxylamine as claimed in any one of claims 20 to 38, wherein said alkali compound is at least one compound selected from the group consisting of an alkali metal compound, an alkaline earth metal compound, an ammonia and an amine.